NEWELL INDUSTRIES, 602 E. HWY. 78, WYLIE, TX. 75098, 214-442-6612

256KXL INSTALLATION, 800XL

CAUTION: This product should only be installed by persons with proper training in the art of soldering. Newell Industries will not be held responsible for damage to the computer due to neglect or carelessness.

NOTE: The ANTIC chip in location U7 should be part number C021697-XX. If the ANTIC chip is C012296, operation of the computer may be erratic if Antic DMA (screen) is turned off. Contact Newell Industries or your Atari service center for the proper Antic.

Read these instructions completely before beginning. Refer to drawing during installation.

1. Disassemble computer and remove the top RF shield.
2. Locate (left side of computer) and remove the 64K ram chips from U9-U16. If your ram chips are not in sockets, they will have to be unsoldered.
3. Install the 256K x 1 bit 150ns DRAM chips in U9-U16. Make sure that you have pin 1 in the proper location. Pin 1 of any chip is ALWAYS to the left of the notch that is at (what is referred to) the top of the chip.
4. Remove the resistor from R32. It is the 5K resistor to the rear of ram socket U9.
5. Remove the 74LS158 or 74LS258 chip from U27 on the computer and install the 16 pin socket provided in U27 if one is not already present.
6. Plug the 256KXL jumper plug into U27 of the computer. Make sure that pin 1 is aligned.
7. Run the following jumper wires from the 256KXL board to the PIA chip in U23. PB2 to pin 12, PB3 to pin 13, PB4 to pin 14, PB5 to pin 15, and PB6 to pin 16. This may be done by running the jumpers to the bottom or top side of the motherboard. If you run the jumpers to the top, you may remove the pins from the socket if you desire. Use caution not to break the leads of the PIA.
8. Run jumper wire from 256KXL DEL to pin 9 of the 74LS51 in U30 (see drawing) and tack solder to this pin. Do not remove this pin and use extreme caution while soldering.
9. Run jumper wire from 256KXL HALT to feedthrough hole just behind the ANTIC chip in U7 (see drawing) that is common with pin 9 (halt) of the ANTIC chip, or tack solder to pin 9 of ANTIC. Do not remove pin 9. SEE NOTES.
10. Run jumper wire from 256KXL RAB to the inside most hole (see drawing) of the R32 resistor pad that is common with pin 1 of the ram chips and solder.
11. Make sure that the 256KXL board is not shorting to anything and turn the computer on. If installation was done properly the computer should come up in the same manner that it did before this installation was done. If not, correct the problem (see trouble shooting) and try again.
12. When putting the computer back together, use extreme caution to make sure that the 256KXL board does not short out anything. You may want to use cardboard or electrical tape to insure this, especially if you move your computer around very much.

Helpful hints:

If you have read these instructions and do not understand them, then do not attempt this installation without assistance. For assistance, you may call Newell Industries between 9 and 5 CT. Collect calls will not be accepted.

Plan the routing of the jumper wires before you start. You may be able to route the wires through the cartridge slot clip holes if you are going to route your jumpers to the bottom. If you feel that you cannot do the installation yourself, and cannot find anyone locally to do it, Newell Industries will install the upgrade for $30.00 plus shipping.

If you have to desolder your ram chips, and you install sockets, make sure that the sockets that you use are high quality, preferably double side wipe (metal contacts the IC leads on both sides).

NOTES:

1. By installing a single pole double throw (SPDT) toggle switch on the halt line, you can manually select antic to follow main or banked memory when banking is enabled. Instead of connecting the halt from the 256KXL to antic, connect it to the center pole of the switch. Connect one side of the switch to antic pin 9. Connect the other side of the switch to +5 volts (use a 1 to 5K resistor in series to +5 volts if available, you can use the 3K resistor removed from R32). Now, depending on the position of the switch, antic will follow either main or banked memory. This switch will need to be installed and set for banked memory if using the 130XE version of TYPESETTER by XLENT Software. No other cases or known at this time.
2. Some of the 800XL computers have the data lines to the ram drilled and resistors installed across them. If so, the resistors must be left connected, or reconnected for proper operation.

TROUBLE SHOOTING

1.BLANK SCREEN

This could be caused by numerous things. Check all ICs for bent pins. Check for shorts in soldering. To isolate problem, remove 256KXL from U27. Install IC back in U27. Install resistor in R32 and power up again. If problem is in 256KXL board, system should come up normally.

2.MYDOS WILL NOT BOOT

Same as 3.

3.ERROR MESSAGES DURING TEST RUN

Check HALT, DEL, RAS to proper pins (see drawing). Check solder connections for bad solder joints or shorts. Check PB2-PB6 to proper pins.

4.UNKNOWN

The chances of your having a defective 256KXL are less than 1 in 500. The most common cause for problems are improper installation. If you have double checked your installation and it still does not work, contact Newell Industries for further assistance.

WARRANTY

Newell Industries will repair or replace any defective part for a period of ninety days from date of purchase at no charge. This excludes parts that have been mishandled or modified in any way.

If you have installed the 256KXL upgrade in your computer and cannot get it to function properly, you may send your computer motherboard to Newell Industries and it will be repaired and returned to you at no charge if it is determined that the upgrade parts are defective. If improper installation is the cause of the failure, Newell Industries will correct the installation and return the tested board to you COD for charges.

USING YOUR 256K RAM

The 256KXL ram expansion provides 64K of direct memory plus 192K of bankable memory in 12 16K banks. The design of this upgrade is so that software designed for the 130XE computer should now load and run on the computer.

Location $D301, the bit map;

BIT 0-O.S. ROM CONTROL, 1=ROM, 0=RAM
BIT 1-BASIC ROM CONTROL, 1=RAM, 0=ROM
BIT 2-RAM BANK SELECT, 1=RAM, 0=RAM, SEE NOTE
BIT 3-RAM BANK SELECT, 1=RAM, 0=RAM, SEE NOTE
BIT 4-RAM BANK ENABLE, 1=NOT ENABLED, 0=ENABLED
BIT 5-RAM BANK SELECT, 1=RAM, 0=RAM, SEE NOTE

BIT 6-RAM BANK SELECT, 1=RAM, 0=RAM, SEE NOTE
BIT 7-DIA.ROM CONTROL, 1=RAM, 0=ROM

NOTE:Bits 2,3,5,and 6 have no effect unless bit 4 is 0 (enabled). The bank memory address is $4000-$7FFF.

The function of location $D301 is the same as the 130XE with the exception of bits 5 and 6. Bit 5 on the 130XE allows ANTIC to follow banked memory if set to 0. With the display up above the memory banks anyway, this feature is actually not very useful unless you have some special applications. (SEE NOTES) With the 256KXL expansion, ANTIC follows the main memory. This insures that your display will never be garbaged by banking. Bit 6 is not used on the 130XE.

BIT 4- THE CONTROL BIT

The computer never sees the extra memory unless bit 4 is set to 0. Once this is done the computer is looking at the extra memory determined by the setting of bits 2,3,5,6. As long as bit 4 is set to 0, the CPU looks at extra memory.

REFERENCE VALUES (stored in location $D301):

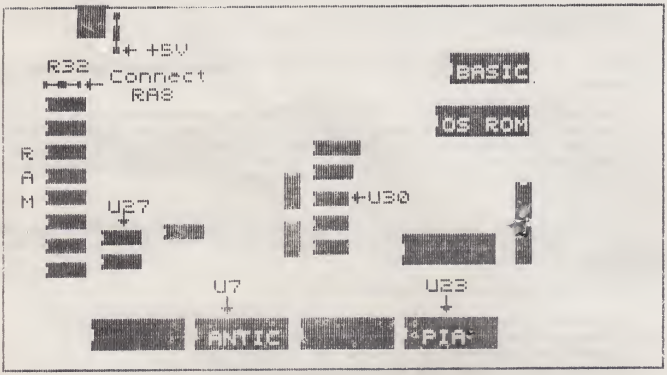
FF=standard ram, basic disabled
EF=extra ram, EB=another bank, E7=another bank, E3=another bank.
CF=another bank, CB=another bank, C7=another bank, C3=another bank.
8F=another bank, 8B=another bank, 87=another bank, 83=last bank.

NOTE: AF,AB,A7,A3 in memory location D301 has the same effect as EF,EB,E7,E3 respectively.

There is a simple program that checks one byte of each bank of memory to insure that they are working. It is on the disk furnished. The filename is "TEST25ok.BAS". When this program is ran, it should come back with "TEST COMPLETED". If you get any ERROR messages back, refer to the trouble shooting section. CAUTION, reboot your system after running this program. It alters memory, and may have some undesirable affects if the system is not rebooted.

MYDOS DISK OPERATING SYSTEM

The MYDOS disk operating system is furnished with the 256KXL upgrade. It is set up for a 192K ramdisk. Refer to the Mydos manual for setting up the various types of ramdisks available.



800 XL GENERAL LAYOUT

TYPICAL IC PIN LAYOUT

DETAILED PINOUT